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IN THE UNITED STATES PATENT & TRADEMARK OFFICE

IN RE APPLICATION OF	:	
KARL-JOSEF OLLFISCH, ET AL.	:	EXAMINER: SZEWCZYK, CYNTHIA
SERIAL NO: 10/550,692	:	
FILED: AUGUST 3, 2006	:	GROUP ART UNIT: 1791
FOR: METHOD AND DEVICE FOR CROWNING GLASS SHEETS	:	

APPEAL BRIEF UNDER 37 C.F.R. § 41.37

COMMISSIONER FOR PATENTS
ALEXANDRIA, VIRGINIA 22313
SIR:

I. REAL PARTY IN INTEREST

The real party in interest is SAINT-GOBAIN GLASS FRANCE, a French corporation.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-15 have been cancelled. Claims 16-30 are being appealed.

IV. STATUS OF AMENDMENTS

All amendments have been entered.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claim 16 recites a process for bending glass sheets heated to their softening point [p. 5, lines 24-25], comprising steps of laying glass sheets on a concave bending frame [frame 3; p. 5, lines 25-26] to be prebent by gravity [p. 5, lines 33-35]; transferring the prebent glass sheets to a transfer former [transfer former 4] with a concave forming surface, the outside dimensions of the transfer former being smaller than those of an area enclosed by the concave bending frame [p. 5, lines 36-39; p. 6, lines 26-30], by moving the transfer former in a generally vertical relative movement through the concave bending frame [p. 6, lines 21-26]; positioning the transfer former to vertically overlie a final bending former p. 6, lines 33-37] in a form of a frame with a concave forming surface [final bending former 5], the outside dimensions of the transfer former being smaller than those of the area enclosed by the concave final bending former [p. 7, lines 10-14]; moving the transfer former in a generally vertical relative movement through the final bending former in a form of a frame [p. 7, lines 6-7], the transferred glass sheets being laid on the final bending former [p. 7, lines 7-10]; bending the transferred glass sheets into a final shape while being supported on the final bending former p. 7, lines 18-35; p. 8, lines 2-3]; and transferring, at an end of the bending step, the bent glass sheets in their final shape from the final bending former to a transport system, and cooling the bent glass sheets [p. 8, lines 4-5].

Claim 21 depends from Claim 16 and further recites that individual glass sheets are bent [p. 10, lines 7-9].

Claim 25 recites a system for bending glass sheets heated to their softening point [p. 5, lines 24-25], comprising an oven configured to heat the glass sheets [p. 5, lines 29-30]; a concave bending frame configured to carry and prebend the heated glass sheets [frame 3; p. 5, lines 25-26]; a transfer former with a concave forming surface [transfer former 4], whose perimeter is smaller than a perimeter of the bending frame and on which the glass sheets are transferred [p. 5, lines 36-39; p. 6, lines 26-30]; a final bending former with a concave forming surface [final bending former 5], whose perimeter is greater than the perimeter of the transfer former [p. 7, lines 10-14], and to which the glass sheets are transferred from the transfer former [p. 7, lines 7-10]; a drive configured to move the bending frame, the transfer former, and the final bending former in the direction of the respective transfer of the glass sheets [p. 10, lines 35-39]; and a transport configured to transport the glass sheets, bent to their final shape, to a cooling station [p. 11, lines 2-3].

VI. GROUND OF REJECTION TO BE REVIEWED ON APPEAL

Claims 16-30 stand rejected under 35 U.S.C. § 103 as being obvious over German patent publication 10105200 which corresponds to U.S. patent publication 2004/0129028 to Balduin et al. DE '200 will therefore hereinafter be referred to as Balduin et al. According to the rejection, it would have been obvious that hot glass sheets placed on the transport device 7 of Balduin et al would continue to sag and bend thereon, whereby the transport device 7 of Balduin et al is the final bending frame.

VII. ARGUMENT

A. Claims 16 and 25

As an initial point, it is noted that although the outstanding rejection of Claims 16 and 25 is nominally based on 35 U.S.C. § 103, the sole "difference" between these claims and

Balduin et al which is mentioned in the rejection is that the hot glass sheets placed on the transport device 7 of Balduin et al would continue to bend, thereby evidently justifying the characterization of transport device 7 of Balduin et al as a final bending frame. It is noted, however, that this is merely the allegation of an inherency in Balduin et al, and so this rejection in fact appears to be based on anticipation (35 U.S.C. § 102).

Claims 16 and 25 are directed to a method and apparatus for bending glass sheets heated to their softening point, in which the glass sheets are subject to both prebending and final bending by gravity while being supported on a frame with a concave forming surface. Such bending is problematic insofar as the transfer of the glass sheets between the frames for prebending and final bending has been complicated.

According to a feature of these claims, the glass sheets are transferred between the concave bending frame for prebending and the concave bending frame for performing the final bending step by way of a transfer former having a concave forming surface and whose outside dimensions are smaller than those of both the concave bending frame for performing the prebending step and the concave bending frame for performing the final bending step. As a result, the prebent glass sheet can be transferred to the transfer former by moving the transfer former in a generally vertical movement through the concave bending frame providing the prebending step, and then transferred to the bending former for the final bending step by positioning the transfer former to vertically override the final bending former and moving the transfer frame in a generally vertical movement through the final bending former. For example, referring to the exemplary figures, the transfer former 4 passes through the prebending former 3 (Figs. 1-2) and the final bending former (Figs. 3-4).

Balduin et al discloses a method for bending glass panes in pairs. According to this prior art, the glass panes are first deposited on a prebending mold 3, wherein they are prebent under the force of gravity. Paragraph [0039]. A concave suction bending mold 5 having a

suction duct 6 is positioned under the prebending mold 3 and has a periphery slightly smaller than that of the prebending mold 3. The concave suction bending mold 5 rises through the prebending mold 3, whereby the prebent glass sheets are transferred to, and subsequently bent by, the concave suction bending mold 5. Paragraphs [0041]-[0044].

The final bending in Balduin et al is performed with the glass panes on the suction bending mold 5, and can optionally be performed in conjunction with a convex upper bending mold 4. In either case, the *fully bent* glass sheets can thereafter be transferred from the suction bending mold 5 to a transport device 7 by lowering the suction bending mold 5 through the transport device 7. Since bending has already been completed, "*further unintended deformation of the edge [of the glass sheets] is prevented*" (emphasis added) during the transfer step on the transport device 7. Paragraph [0050].

It is noted that suction bending mold 5 of Balduin et al, not the transport device 7, is identified therein the final bending former (paragraph [0050]; "As the last phase in the bending method proper ... [t]he now finished bent pair of panes ... rest freely in surface contact with the suction bending mold 5"). No transport former passes through this final bending former. Therefore, Balduin et al lacks the claimed steps in Claim 16 of "positioning the transfer former to vertically override a final bending former" and "moving the transfer former in a generally vertical relative movement through the final bending former." Similarly, it lacks the features recited in Claim 25 of a transfer former "whose perimeter is smaller than a perimeter of the bending frame and on which the glass sheets are transferred," or a final bending former "whose perimeter is greater than the perimeter of the transfer former, and to which the glass sheets are transferred from the transfer former." Instead, the final bending former 5 of Balduin et al passes through the transport device 7 and so the outside dimensions of the transport device 7 are larger -- not smaller -- than those of the area enclosed by the final bending former 5.

This difference is important because it prevents Balduin et al from adequately shaping the edges of the glass sheets. Referring to the annotated Figs. 5 and 6 of Balduin et al shown below, the glass sheets 2 must have dimensions sufficient to be supported by the transport device 7 (Fig. 6). This means that the final bending former 5, which passes through the interior of the transport device 7, cannot shape the edges "D" of the glass sheets. On the other hand, since the outside dimensions of the transfer former according to the invention are smaller than those of the final bending former, and the transfer former is moved vertically through the final bending former, the edges of the glass sheets can be bent by the final bending former. This improved result is unexpected from Balduin et al and so the claims define over this prior art.

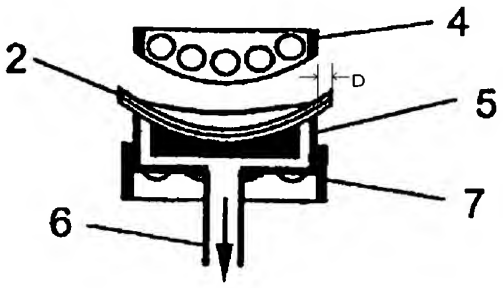


Fig. 5

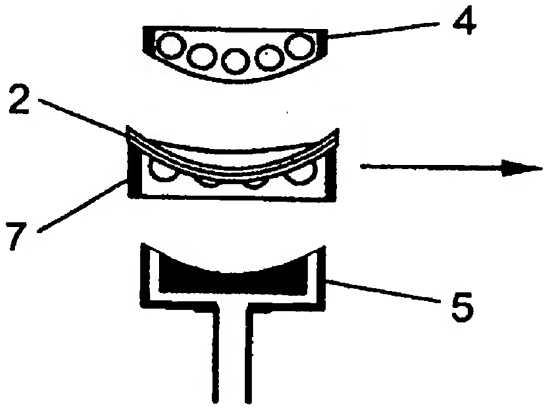


Fig. 6

As for the allegation in the outstanding rejection that the hot glass sheets placed on the transport device 7 of Balduin et al would inherently continue to bend thereon, whereby it is actually the transport device 7 that comprises the final bending frame, this alleged inherency is not supported by the structure of Balduin et al and is contrary to the explicit teachings therein.

A softened hot glass sheet placed on the transport device 7 of Balduin et al would "continue to sag" and bend, as alleged in the rejection, only if the frame of the transport device 7 has a shape different from that of the bending mold 5 in a way to permit such further sagging and bending. However, the transport device 7 in fact desirably "forms a continuous extension of the bending face of the ... bending mold 5" (Balduin et al; sentence bridging pp. 4-5). Therefore, the glass sheets having already been shaped by the bending mold 5 to which the transport device 7 forms a "continuous extension," will already have the shape of the transport device 7 and so will not sag further thereon. Indeed, a contrary conclusion would be inconsistent with the description in paragraph [0050] of Balduin et al that "further unintended deformation of the edge is prevented" during transfer on the transport device 7.

Thus, there is no valid technical basis to support the allegation in the rejection that the glass panes will further bend on the transport device of Balduin et al, and so there is no valid technical basis to support the further allegation that the transport device 7 comprises the final bending former of Balduin et al, whereby the claimed subject matter is taught.

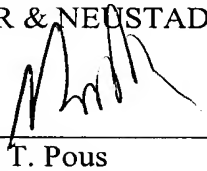
B. Claim 21

Dependent Claim 21 further recites that individual glass sheets are bent. On the other hand, Balduin et al is directed to a process for bending glass panes in pairs. While it is known to bend individual glass sheets, *per se*, Balduin et al describes that the invention therein is designed to overcome problems associated with the bending of glass sheets in pairs, e.g., the introduction of air between the sheets being bent (paragraphs [0013]-[0018]). Therefore, it includes features to overcome these problems, for example the lower suction mold 5 to apply pressure to the lowermost pane (paragraph [0048]. Since Balduin et al is specifically designed to bend glass sheets in pairs, one skilled in the art would not have used the method therein to bend individual glass sheets.

Appellants therefore request that the final rejection be REVERSED.

Respectfully submitted,

OBLON, SPIVAK, McCLELLAND,
MAIER & NEUSTADT, P.C.



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APPENDIX OF APPEALED CLAIMS

Claim 16: A process for bending glass sheets heated to their softening point, comprising the steps of:

laying glass sheets on a concave bending frame to be prebent by gravity;

transferring the prebent glass sheets to a transfer former with a concave forming surface, the outside dimensions of the transfer former being smaller than those of an area enclosed by the concave bending frame, by moving the transfer former in a generally vertical relative movement through the concave bending frame;

positioning the transfer former to vertically overlie a final bending former in a form of a frame with a concave forming surface, the outside dimensions of the transfer former being smaller than those of the area enclosed by the concave final bending former;

moving the transfer former in a generally vertical relative movement through the final bending former in a form of a frame, the transferred glass sheets being laid on the final bending former;

bending the transferred glass sheets into a final shape while being supported on the final bending former; and

transferring, at an end of the bending step, the bent glass sheets in their final shape from the final bending former to a transport system, and cooling the bent glass sheets.

Claim 17: The process as claimed in claim 16, wherein the transferred glass sheets are put through an additional bending operation on the transfer former by a differential pressure.

Claim 18: The process as claimed in claim 16, wherein the transferred glass sheets are bent into their final shape on the final bending former by gravity.

Claim 19: The process as claimed in claim 16, wherein the transferred glass sheets are bent into their final shape using an upper former complementary in shape to the final bending former, which presses the glass sheets in at least their edge region onto the final bending former.

Claim 20: The process as claimed in claim 19, wherein the press bending is assisted by a differential pressure.

Claim 21: The process as claimed in claim 16, wherein individual glass sheets are bent.

Claim 22: The process as claimed in claim 21, wherein following the final bending operation, the individual glass sheets are removed from the final bending former on a toughening ring and toughened.

Claim 23: The method as claimed in claim 16, wherein plural glass sheets placed on top of each other are bent.

Claim 24: The method as claimed in claim 23, wherein the plural glass sheets placed on top of each other are, following the final bending, removed from the final bending former on a cooling system and cooled to a temperature below their softening point.

Claim 25: A system for bending glass sheets heated to their softening point, comprising:

an oven configured to heat the glass sheets;

a concave bending frame configured to carry and prebend the heated glass sheets;

a transfer former with a concave forming surface, whose perimeter is smaller than a perimeter of the bending frame and on which the glass sheets are transferred;

a final bending former with a concave forming surface, whose perimeter is greater than the perimeter of the transfer former, and to which the glass sheets are transferred from the transfer former;

a drive configured to move the bending frame, the transfer former, and the final bending former in the direction of the respective transfer of the glass sheets; and

a transport configured to transport the glass sheets, bent to their final shape, to a cooling station.

Claim 26: The system as claimed in claim 25, wherein the transfer former is provided with means for producing a depression between its forming surface and the glass sheets.

Claim 27: The system as claimed in claim 26, wherein the transfer former has a solid concave surface.

Claim 28: The system as claimed in claim 25, further comprising an upper former complementary in shape to the final bending former, configured to be placed in contact with at least edge regions of the glass sheets placed on the final bending former.

Claim 29: The system as claimed in claim 28, wherein the upper former is provided with means for producing a differential pressure between the forming surface of the upper former and the upper surface of the glass sheets.

Claim 30: The system as claimed in claim 28, wherein the upper former has a solid convex surface.

EVIDENCE APPENDIX

None.

RELATED PROCEEDINGS APPENDIX

None.